Guide to Minolta Cameras or What They Didn’t Tell Us in Their Docs

Compiled by Petr Holub

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This guide is based on experiences of people around the Internet – mostly from Minolta Yahoo group. This guide is dedicated to this group in hope that it could help to bring back discussions to the photography instead of lost expectations about D-SLRs and similar things.

I WOULD LIKE TO THANK TO
all the people that contributed to this guide in any way and all the people that participate in Minolta Yahoo group discussions.

P. H.

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Chapter 1

Foreword

As noticed by many photographers around the world Minolta produces high quality products for photographers. What they lack are people capable of writing documentation of reasonable quality...

After hearing many discussions like: "My camera of this brand is much better that your of that brand!" and after seeing many master-pieces of photography shot with some of old all-manual cameras the point I feel as the most important is to get acquainted with *the* camera you already have (unless it's really crippled) and *to know exactly what it will do under (almost) any situation and how to make it do what you need and want.* I hope that this guide will help us at least a bit to have our Minolta cameras working in this manner.

Here's the list of people whose contributions has been included in this guide:

- Chingfeng Au *(cfau1974@hotmail.com)*
- Phil Brandon *(??)*
- Chuck Cole *cncole@earthlink.net)*
- CyberSimian *(CyberSimian@BTinternet.com)*
- Gary Friedman *(gary@friedmanarchives.com)*
- Petr Holub *(hopet@ics.muni.cz)*
- Csaba JOZSA *(??)*
- Scott Kimball *(SCOTTK@MAINE.maine.edu)*
- Peter Blaise Monahon *(peterblaise@yahoo.com)*
- Dario Piantanida *(ario@logic.it)*
- Marat R. Safiulin *(??)*
- Magnus Wedberg *(mw@9000.org)*

I would really appreciate having other people contributing to this guide to help other from the community. If you have anything what you think could be valuable for others don't hesitate to contact me. The same holds if you discover some valuable discussion in Minolta group archives. I will be happy to add your contributions!

P. H.

Chapter 2

Information on bodies and lenses

2.1 Minolta AF bodies

2.1.1 Overview of Minolta AF bodies

[Author(s): Unknown, taken from Minolta AF FAQ [4].]

Table 2.1: Minolta AF Bodies in Chronological Release Date Order

Released	*Europe* Dynax	*U.S.* Maxxum	*Canada* Maxxum	*Japan* *Alpha (α)*
1985	7000 AF	7000 AF		7000 Alpha
1985	9000 AF	9000 AF		9000 Alpha
1986	5000 AF	5000 AF		5000 Alpha
1988	3000i	3000i		
1988	7000i	7000i		Alpha 7700i
1989	5000i	5000i		Alpha 5700i
1990	8000i	8000i		Alpha 8700i
1991		SPxi		
1991	3xi	3xi		
1991	7xi	7xi		
1992	2xi	2xi		
1992	5xi	5xi		
1992	9xi	9xi		
1993	700si	700si		707si
1994	500si	400si		
1995	300si			
1995	500si Super	500si		
1995	600si (Classic)	600si (Classic)		
1997	800si	800si		807si
1998	505si	HTsi		
1998	505si Super	XTsi		Alpha Sweet
1998	9	9		9
1999	303si	QTsi		
1999	404si	NYA	STsi	
2000	7	7		7
2001	5	5		5

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Released	*Europe* Dynax	*U.S.* Maxxum	*Canada* Maxxum	*Japan Alpha (α)*
2002	4	4		
2003	3L	3L		

2.1.2 Batteries for Minolta equipment

[Author(s): Unknown, taken from Minolta AF FAQ [4].]

Table 2.2: Batteries for Minolta equipment

Body or Meter	*Batteries Used*
Dynax/Maxxum AF Bodies	
All except below & XTsi	1 × 2CR5
Dynax 5, 505si, XTsi	2 × CR2
Dynax 7 and 9 body	2 × CR123A
VC-700 and VC-800 grips	4 × AA or 1 *x* 2CR5
VC-7 and VC-9 grips	4 × AA or (1 × 2CR5 and/or 1 × CR123A)
Original AF Bodies	
9000	2 × AA
7000 & 5000 with original battery holder	4 × AAA
7000 & 5000 with optional BH-70L	4 × AA
MF SLRs	
XM, XE-1, XE-5, XD-7, XD-5, XG-1, XG-2, XG-9, XGM, X-9 X-300, x-300s, X320s, X-500, X-700	2 × EPX-76 or 2 × 10L14
SRT-101, 100, 202, 303, 100x, 101b, 303b, SR7, SR1 Meter	1 × PX625
Vectis APS Bodies	
S-1, S-100	2 × CR2
40	2 x CR2
300, 30, 25, 200, 20, 10, UC, Weathermatic, GX variants	1 × CR2
Himatic Compacts and Earlier Rangefinder Bodies	
Minolta AL-F, AL-E, Himatic 7, 7s, 9 and 11	1 × PX625
Himatic 7S-II, 5, G, G2, C	1 × PX675
Himatic E, F	1 × PX640
Himatic S, S2, GF, AF, AF2, AF2M	2 × AA
Minolta CLE (Leica M lensmount)	2 × 10L14 or EPX-76
AF and Focus-free Compacts (modern)	
140EX, 135EX, 105EX, Panorama Zoom 28	2 × CR123A
90EX, 70C, Weathermatic DL	1 × DL223A
115EX, 75W, 70W, 70EX, RZ 70, Pcio, Mini, Panorama	1 × CR123A
105i, 90C, Twin 28, AF Zoom 65, AF Zoom 90, AF Tele Super	1 × 2CR5
AF5, 100AF, AF35EX, AF35, AF35C, Riva 35	2 × AA
AF-101R, AF-20R, F-10/BF, C-10, Memory Maker	2 × AA
FS-E, FS-EII, FS-35, AF-E	2 × AA
AF-C	4 × 10L14
AF-T	2 × AA or DL223A
AF-Z, AF-EII, AF-DL, AF Tele 60, AF-SP	4 × AAA or DL223A
continued on next page. . .	

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Body or Meter	*Batteries Used*
TC-1	1 × CR123A
Digital Cameras	
Dimge V	4 × AA
RD-175	1 × 2CR5
Exposure Meters	
Flashmeter V, Autometer IV F, Spotmeter F	1 × AA
Flashmeter IV	1 × AA and 1 × PX28
Autometer IIIF, III and II, Spotmeter M	1 × PX28
Colormeter II, Flashmeter II	1 × MN1604
Flashmeter III	6 × 10L14
Booster II	1 × PX28
Viewmeter 9	1 × 1.35 V mercury cell: PX1 or RM1

Notes: PX625 and other PX- type button batteries, as used in many older manual focus SLRs, contain mercury and slowly being outlawed around the world for obvious environmental reasons. A possible solution is the ”air cell”, made by Wein in the USA. Ask for WeinCell MRB625 (to replace a PX625), MRB675 (PX675) or MRB400 (PX400).

Some discontinued AF bodies use a separate internal button battery to provide memory backup for settings, etc. Although they last a long time, they do eventually need replacing. The individual requirements of these particualr bodies are not listed in the table above, but I would be glad to add them.

Avoid the cheap types of button cells made for ”virtual pets” or market-stall watches. They are not the same as those intended for photographic use: their output voltage varies underload and this will lead to incorrect meter readings.

2.2 Minolta Dynax/Maxxum 600si (507si, 650si)

2.2.1 Beyond the Owner’s Manual: Tips and Tricks

[Author(s): Peter Blaise Monahon, taken from [12].]

LCD Displays Check: On the Minolta 507si, 600si, and 650si camera, to check the valid functioning of every LCD Liquid Crystal Display element:

1. Set the Drive Mode Selector to Multiple Exposure,
2. Press and hold the ISO Film Speed Button while opening and closing the battery door.
   All displays appear in the Body and Viewfinder Data Panels.
3. Open and close the battery door to return the displays to normal.

Auto Exposure Lock: Only the AEL Auto Exposure Lock button will lock exposure when the Minolta 507si, 600si, and 650si camera is set for Center-Weighted Average Metering Mode or Spot Metering Mode. Pressing the AEL Auto Exposure Lock Button locks the exposure settings and switches the meter to Spot Metering Mode. The AEL Auto Exposure Lock control has no function in M Manual Exposure Mode.

You have three options for locking and holding the desired exposure value on the Minolta 507si, 600si, and 650si camera:

1. Using M Manual Exposure Mode, once set, the camera auto functions will not override your Aperture and Shutter Speed selections.

2. Using 14 Segment Honeycomb Metering Mode and an attached automatic lens in AF Auto Focus mode, you can lock the exposure reading in P Program Exposure Mode, A Aperture priority Exposure Mode, or in S Shutter Speed Priority Exposure Mode by pressing the Shutter Release Button part way down.

3. Center-Weighted Metering Mode and Spot Metering Mode readings can be locked using only a third method – pressing the AEL Auto Exposure Lock Button, marked AEL to the right of the eyepiece.

You can use the AEL Auto Exposure Lock Button to lock the exposure setting in any of the Minolta 507si, 600si, and 650si camera's three metering systems. AEL Auto Exposure Lock is especially useful in the automatic exposure modes, Program, A Aperture priority, or S Shutter priority, when you want to take a meter reading from one part of your chosen photographic subject scene and then focus on another part. You can do this by focusing, and possibly zooming in, on the detail you want to meter and then pressing and holding the AEL button. [AEL] appears in the Viewfinder Data Panel. You must maintain pressure on the AEL button until you release the shutter to the picture. Then aim the focusing target at your subject and press the shutter release part way down to lock focus. You can then reframe and adjust the lens zoom if necessary to get the image you want. Then press the shutter release all the way down and make your exposure.

By Minolta factory default, the AEL Auto Exposure Lock feature is effective only while you hold it down. To reset the AEL Auto Exposure Lock feature to toggle – AEL on at first press, off at second press – hold ISO Button switch and tap AEL Auto Exposure Lock Button.

Front and Rear Control Dial Rules: Generally, both front and rear control dials increase the numeric value being controlled when rotated to the right, and decrease the numeric value being controlled when rotated to the left.

The Front and Rear dials Control Dials on the Minolta 507si, 600si, and 650si camera can be used interchangeably to set camera body Shutter speed and an attached automatic lens Aperture in all Exposure Modes and operations except M Manual Exposure Mode.

In M Manual Exposure Mode, the Front Control Dial sets the camera body Shutter Speed and the Rear Control Dial sets an attached automatic lens Aperture. For guidance from the Metering system, rotate the Control Dials in the direction of the arrows in the Viewfinder Data Panel to obtain a Shutter Speed and attached automatic lens Aperture to correspond with the camera Metering system's assessment of your chosen photographic subject.

Viewfinder "Long Eye Relief": The viewfinder image and all displays can be seen in their entirety from a distance of 0.9 inch (22.7 mm), appropriate for photographers wearing glasses.

Setting Viewfinder Diopter: You can easily set the diopter correction without a lens on the camera. Point it toward a bright light source and turn the small diopter adjustment dial (next to the eyepiece) until the brackets etched on the viewing screen appear sharpest. The dial sets correction factors between -2.5 and $+0.5$ diopters.

High Shutter Speed Flash: The Minolta 5400HS accessory flash unit emits a short pre-flash in HSS High Speed Synchronization Mode, which fires when the camera's Shutter Release Button is depressed half way. This allows the camera metering system to measure the subject's illumination at this instant and select a flash intensity and Shutter Speed for balanced illumination of the subject and the background. If, while in P Program or Aperture priority Exposure Mode, a Flash to Shutter synchronization speed faster than $1/200$ second is called for, the system automatically shifts into High Speed Synchronization Mode. High Speed Synchronization Mode Flash differs from conventional flash by firing a series of high-frequency pulses at 50 k Hz that resemble a constant light source. Even illumination across the film frame is assured during the entire time the camera's shutter curtains are open to record the image.

Flash Auto Program: The Minolta 507si, 600si, and 650si camera selects a flash program when the retractable flash head or an accessory flash unit is activated. However, in Program Exposure Mode with sufficient available light, the camera will not use the flash unless you press and hold the Flash Control Button during exposure.

Auto Focus Illuminator: The Minolta 507si, 600si and 650si camera Auto Focus Illuminator light feature of the built in flash or attached accessory flash will not function in C Continuous Auto Focus mode.

Auto Metering Features: The metering system of the Minolta 507si, 600si, and 650si camera starts with a proven auto focus-integrated computer first introduced by Minolta with the xi series cameras. This computer ensures that the light meter's main emphasis is on the area in sharp focus. This optimizes exposure for the primary subject.

The camera meter is calibrated for medium gray, which is equivalent to an 18 %, reflectance. This value was arrived at with the assumption that 'average' photographic subject scenes have a contrast range of 1:32. This is a valid assumption for common outdoor scenes that include grass, dirt, rocks, trees, and sky, for instance. The various reflectance values average to a median value with a density of 0.75, or 18 % reflectance.

The camera meter measures light reflected back from the subject through the lens, hence the term TTL Through The Lens metering. This is also the design of all other modern SLR Single Lens Reflex cameras.

When the camera metering system determines the subject scene to be a landscape, metering emphasis is on the lower section of the frame. In strong backlighting, such as when shooting toward a bright ocean, the camera metering and exposure computer automatically compensate for a bright rendition of the scene. However, with a small subject on bright sand or surf, such as a small boat on a large body of water, expect to need to dial in a $+1$ EV Exposure Value compensation factor because the camera metering system interprets such a scene as a landscape.

When you set the camera to the evaluative 14 Segment Honeycomb Pattern Metering Mode, the camera computer sets its own Exposure Compensation in an attempt to render a bright scene or dark scene accurately on film. For example, beyond a certain high brightness level, the camera system increases exposure by one EV Exposure Value stop to render the subject as bright.

Use the Exposure Compensation feature to assist the camera's Metering system to accurately match your chosen photographic subject scene brightness dynamic range to your chosen film's sensitivity dynamic range:

A white surface reflects more light than a gray surface – approximately two stops more. + Plus EV Exposure Value Compensation will increase the amount of light reaching the film to render a light photographic subject accurately.

A black surface reflects less light – approximately two stops less. $-$ Minus EV Exposure Value Compensation will reduce the amount of light reaching the film, to render a dark photographic subject correctly.

If the range of brightnesses within your chosen photographic subject scene are within the $+$ or $-$ range of the Viewfinder Data Panel scale, then they can be recorded accurately within most film's reproducible dynamic range. Any index reading of $+3$ or greater will probably be reproduced as white on film, and any reading of -3 or beyond will probably be reproduced as black on film.

To toggle on/off the viewfinder LCD indicator for Exposure Compensation, hold the ISO Button and the Depth Of Field Preview Button.

The center-weighted metering is not linked to the auto focus system, nor does it input exposure corrections of its own. Primary emphasis is placed on the subject area within the brackets etched on the viewfinder, with much less emphasis on surrounding areas, and none on the top section where sky might be located.

Auto Focus Features: In the Minolta 507si, 600si, and 650si camera, program modes are aware of an attached automatic lens focal length. A telephoto lens activates higher shutter speeds, and a wide-angle lens activates smaller apertures. For example, the camera sets a small aperture for a landscape to achieve an extensive range of apparent sharpness. If the AF Auto Focus system detects motion, it sets a high shutter speed such as $1/500$ second to stop action. For a portrait, a moderately wide aperture is set to

blur a distracting background while keeping both the subject's nose and ears in focus. In selecting an aperture-shutter speed combination, the system considers such factors as focal length, subject reflectance and contrast, subject distance and type, and the reproduction ratio, or degree of magnification. The system then selects an appropriate combination of aperture and shutter speed for the situation, however it will try to maintain a hand-holdable shutter speed, such as $1/60$ second shutter speed with a 50 mm lens, to reduce the risk of blur from hand held camera shake.

To disable AF Auto Focus lens to Shutter interlock, hold the ISO Button and the Lens Mount Button while turning the camera ON.

Automatic Exposure Bracketing: Automatic Exposure Bracketing drive mode exposed 3 consecutive images, one at normal EV Exposure Value, plus one at $+1/2$ stop EV Exposure Value and then one at $-1/2$ stop EV Exposure Value, which is a rather narrow exposure range best suited for the sensitivity and dynamic range of slide film. For other film, you can use manual Exposure Compensation control, perhaps taking two additional frames, one at +1 or greater and the other at the +2 or greater setting.

Multiple Multiple Exposures: Although you can pre-set a maximum of nine exposures on one frame of film, you can actually achieve any number. If you want to shoot 16, for example, merely reset the Multiple Exposure feature to 8 after shooting the first 8.

Body Depth: The depth of the Minolta lens mount to film plane is 44.7mm.

Setting DX Film For More Than 24 or 36 Frames: The Minolta 507si, 600si and 650si camera will rewind the film immediately after the last frame of 24 or 36 exposures as sensed by the DX coding on the film can. The selected Aperture and Shutter Speed values will disappear immediately after the last exposure when rewind begins preventing you from viewing and recording these values.

To wind to the true end of your film and expose additional available frames, scrape the paint off the film can DX sections 8, 9 and 10. The camera will then rewind only when film advance is not possible due to reaching the true end of the film, or if you manually press the Rewind Button.

This permits you to manually rewind after recording your Aperture and Shutter Settings after the final frame, either 24 or 36, or to expose an additional frame. However, be aware that rewind will begin immediately after the final exposure, so watch for and record you final frame Aperture and Shutter Speed before or during the final exposure.

2.3 Dynax/Maxxum Lens Chart

[Author(s): Minolta Corp.]

Used abbreviations:

* – Discontinued

RS – Restyled

HS – High Speed

For detailed explanation see section 2.3.3 (page 14).

Table 2.3: Fixed focal length lenses

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
16mm f/2.8 Fisheye	11/8	180°	.7	1/6.6	integral	2–15/16 × 2–5/8	14–1/8
*20mm f/2.8	10/9	94°	.8	1/7.7	72 mm	3–1/6 × 20–1/8	10
20mm f/2.8 [RS]	10/9	94°	.8	1/7.7	72 mm	3–1/6 × 2–1/8	10
*24mm f/2.8	8/8	84°	.8	1/6.5	55 mm	2–9/16 × 1–3/4	1–9/16
24mm f/2.8 [RS]	8/8	84°	.8	1/6.5	55 mm	2–9/16 × 1–3/4	1–9/16
28mm f/2	9/9	75°	1	1/7.7	55 mm	2–5/8 × 1–15/16	10–1/16
28mm f/2.8	5/5	75°	1	1/7.7	49 mm	2–9/16 × 1–11/16	6–1/2
*35mm f/1.4 G	10/8	63°	1	1/5	55 mm	2–9/16 × 3	16–9/16
35mm f/1.4 G [RS]	10/8	63°	1	1/5	55 mm	2–9/16 × 3	17–9/16
*35mm f/2	7/6	63°	1	1/5.88	55 mm	2–5/8 × 1–15/16	8–7/16
35mm f/2 [RS]	7/6	63°	1	1/5.88	55 mm	2–5/8 × 1–15/16	8–1/2
*50mm f/1.4	7/6	47°	1.5	1/6.66	49 mm	2–9/16 × 1–1/2	8–5/16
50mm f/1.4 [RS]	7/6	47°	1.5	1/6.66	55 mm	2–9/16 × 1–1/2	8–5/16
*50mm f/1.7	6/5	47°	1.5	1/6.66	49 mm	2–5/8 × 1–9/16	6
*50mm f/1.7 [RS]	6/5	47°	1.5	1/6.66	49 mm	2–5/8 × 1–9/16	6
*50mm f/1.4 [RS]	7/6	47°	1.5	1/6.66	55 mm	2–9/16 × 1–2/3	8–5/16
*85mm f/1.4	7/6	28° 30’	2.8	1/7.81	72 mm	3–1/16 × 2–13/16	19–3/8
*85mm f/1.4 G [RS]	7/6	28° 30’	2.8	1/7.81	72 mm	3–1/16 × 2–13/16	19–3/8
*100mm f/2	7/6	24°	3.3	1/7.7	55 mm	2–5/8 × 3	16–15/16
100mm f/2.8 Soft	7/7	24°	2.62	1/5.88	55 mm	2–13/16 × 3–1/16	15–1/2
*135mm f/2.8	5/7	18°	3.28	1/6.25	55 mm	2–9/16 × 3–1/4	12–7/8
135mm f/2.8 [T4.5] STF	8/6	18°	2.85	1/4	72 mm	3–1/8 × 3–15/16	25–3/4
*200mm f/2.8 APO	8/7	12° 30’	4.9	1/6.25	72 mm	2–3/8 × 5–1/4	17–7/8
200mm f/2.8 APO G [HS]	8/7	12° 30’	4.9	1/6.25	72 mm	2–3/8 × 5–1/4	17–7/8
*300mm f/2.8 APO	11/9	8° 10’	8.2	1/7.14	integral	5–1/16 × 9–3/8	87–1/2
300mm f/2.8 APO G [HS]	11/9	8° 10’	8.2	1/7.14	integral	5–1/16 × 9–3/8	87–1/2
300mm f/4 APO G	9/7	8° 10’	8.2	1/7.14	integral	3–9/16 × 8–11/16	49–3/4

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Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
400mm f/4.5 APO G	9/7	6° 10’	9.9	1/6.5	integral	4–1/4 × 10–3/4	67
500mm f/8 Mirror Reflex	7/5	5°	13	1/7.7	integral	3–1/8 × 4–5/8	23–7/16
*600mm f/4	10/9	4° 10’	20	1/9	integral	6–5/8 × 17–11/16	194
600mm f/4 G [HS]	10/9	4° 10’	20	1/9	integral	6–5/8 × 17–11/16	194

Table 2.4: Zoom lenses

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
17–35mm f/3.5 G	15/12	104° – 63°	.98	1/6×	77 mm	3–1/4 × 3–1/5	21–1/16
20–35mm f/3.5–4.5	13/11	94° – 63°	1.6	1/12.3×	72 mm	3 × 2–3/4	11–7/16
*24–50mm f/4	7/7	84° – 47°	1.1	1/5.55	55 mm	2–11/16 × 2–3/8	10–1/16
24–50mm f/4[RS]	7/7	84° – 47°	1.1	1/5.55	55 mm	2–11/16 × 2–3/8	10–1/16
*24–85mm f/3.4–4.5	14/12	84° – 29°	1.6	1/5.88	62 mm	2–7/8 × 2–7/8	14–5/8
24–85mm f/3.4–4.5[RS]	14/12	84° – 29°	1.6	1/5.88	62 mm	2–7/8 × 2–7/8	14–5/8
24–105mm f/3.4–4.5[D]	12/11	84° – 23°	1.6	1.588	62 mm	2–13/16 × 2–11/16	13–15/16
28–70mm f/2.8 G	16/11	75° – 34°	2.3	1/11	72 mm	3–1/4 × 4–9/16	30
*28–80mm f/4–5.6 MZ	7/7	75° – 30°	2.6(1.2)	1/9(1/4)	55 mm	2–11/16 × 2–1/16	8–13/16
28–80mm f/3.5–5.6 II	10/10	75° – 30°	1.3	1/3.8	62 mm	2–9/16 × 2–11/16	8–1/2
28–80mm f/3.5–5.6 (D) (S)	8/7	75° – 30°	1.3	1/4.1	55 mm	2–7/16 × 2–9/16	6–11/16
*28–85mm f/3.5–4.5	13/10	75° – 29°	2.6(.8)	1/8.3(1/4)	55 mm	2–11/16 × 3–3/8	17–5/16
*28–85mm f/3.5–4.5 [RS]	13/10	75° – 29°	2.6(.8)	1/8.3(1/4)	55 mm	2–11/16 × 3–3/8	17–5/16
*28–105mm f/3.5–4.5 MZ	13/10	75° – 23°	1.6	1/4.7	62 mm	2–7/8 × 3–1/8	17–1/8
28–105mm f/3.5–4.5[RS]	13/10	75° – 23°	1.6	1/4.7	62 mm	2–7/8 × 3–1/8	17–1/8

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Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
*28–135mm f/4–5.6	13/16	75° – 18°	5 (.82)	1/11(1/4)	72 mm	2–15/16 × 4–5/16	26–7/16
35–70mm f/3.5–4.5 MZ	7/7	63° – 34°	1.6	1/6.6	49 mm	2–11/16 × 2–1/2	7–3/4
35–70mm f/4	6/6	63° – 34°	3.3(1)	1/14.3(1/4)	49 mm	2–11/16 × 2–1/16	9–1/16
*35–80mm f/4–5.6	8/8	63° – 30°	1.6	1/5.7	46 mm	2–9/16 × 2–15/16	6–7/8
35–80mm f/4–5.6 II	8/8	63° – 30°	1.25	1/4	49 mm	2–7/16 × 2–10/16	5–3/8
*35–105mm f/3.5–4.5	12/14	63° – 23°	5(1.34)	1/12.5(1/4)	55 mm	2–11/16 × 3–7/16	17–1/2
*35–105mm f/3.5–4.5N	12/10	63° – 23°	2.8	1/6.5	55 mm	2–11/16 × 2–5/16	7–3/4
*70–210mm f/4	9/12	34° – 12°	3.6	1/4	55 mm	2–7/8 × 6	24–1/2
*70–210mm f/3.5–4.5	12/12	34° – 12°	3.6	1/3.9	55 mm	2–7/8 × 3–15/16	14–13/16
*70–210mm f/4.5–5.6 MZ	10/10	34° – 12°	3.6	1/3.84	49 mm	2–3/4 × 3–11/16	12–3/8
70–210mm f/4.5–5.6 II‡	10/10	34° – 12°	3.6	1/3.84	49 mm	2–3/4 × 3–11/16	11–1/4
*75–300mm f/4.5–5.6	13/11	32° – 8° 10’	4.9	1/3.84	55 mm	2–7/8 × 6–7/16	30–1/2
75–300mm f/4.5–5.6	13/10	32° – 8° 10’	4.9	1/4	55 mm	2–13/16 × 4–13/16	18–1/2
75–300mm f/4.5–5.6 II‡	13/10	32° – 8° 10’	4.9	1/4	55 mm	2–13/16 × 4–13/16	17–1/4
75–300mm f/4.5–5.6 (D) (S)	13/10	32° – 8° 10’	4.9	1/4	55 mm	2–13/16 × 4–13/16	16–1/4
*80–200mm f/4.5–5.6	9/9	30° – 12° 30’	4.9	1/6.4	46 mm	2–7/8 × 3–3/16	10–9/16
*80–200mm f/2.8 APO	16/13	30° – 12° 30’	5.9	1/6.9	72 mm	3–1/2 × 6–9/16	45–1/8
80–200mm f/2.8 APO G[RS]	16/13	30° – 12° 30’	5.9	1/6.9	72 mm	3–1/2 × 6–9/16	45–1/8
*100–200mm f/4.5	8/7	24° – 12° 30’	6.2	1/8.3	49 mm	2–3/4 × 3–3/4	13–1/4
*100–300mm f/4.5–5.6	11/9	24° – 8° 10’	4.9	1/4	55 mm	2–7/8 × 3–15/16	14–7/16
*100–300mm f/4.5–5.6 APO	11/10	24° – 8° 10’	4.9	1/4	55 mm	2–7/8 × 4	15–3/8

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Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
100–300mm f/4.5–5.6 APO (D)	11/10	24° – 8° 10’	4.9	1/4	55 mm	2–7/8 × 4	17–1/8
100–400mm f/4.5–6.7 APO	14/11	24° – 6° 10’	6.6	1/4	72 mm	3–1/8 × 5–7/8	29–1/2

‡– These lenses have the same glass as the previous MZ models. No Focus scale. No focus lock button.

Table 2.5: Macro lenses

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
*50mm f/2.8	7/6	47°	.65	1/1	55 mm	2–11/16 × 2–5/16	10–5/16
50mm f/2.8 [RS]	7/6	47°	.65	1/1	55 mm	2–3/4 × 2–3/8	11–7/16
50mm f/3.5	5/5	47°	.75	1/2	55 mm	2–5/8 × 2–3/16	7
*100mm f/2.8	8/8	24°	1.2	1/1	55 mm	2–13/16 × 3–7/8	18–5/16
100mm f/2.8 [RS]	8/8	24°	1.2	1/1	55 mm	2–13/16 × 3–7/8	18–5/16
100mm f/2.8 (D)	8/8	24°	1.2	1/1	55 mm	2–15/16 × 3–7/8	18
200mm f/4 APO G	13/8	12° 30’	12° 30’	1/1	72 mm	3–1/8 × 7–2/3	40–3/16
3× – 1× Zoom f/1.7–2.8	7/5	8 × 12 mm (3X) 24 × 36 mm (1X)‡	1” (3X) 1.6” (1X)	3/1 1/1	46 mm	3–3/8 × 4–5/8 × 3–3/4 (W×H×D)	38–13/16

‡– Size of subject that fills the film plane.

Table 2.6: Teleconvertors

Lens	*Elements / Groups*	*Dimensions (dia. × length) [in]*	*Weight [oz]*	*Compatibility*
*1.4× APO	5/4	2–1/2 × 13/16	6–3/16	200 f/2.8 APO G 300 f/2.8 APO G 300 f/4 APO G 400 f/4.5 APO G 600 f/4 APO G
1.4× II APO [HS]	5/4	2–1/2 × 13/16	6–3/16	200 f/2.8 APO G 300 f/2.8 APO G

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Lens	*Elements / Groups*	*Dimensions (dia. × length) [in]*	*Weight [oz]*	*Compatibility*
				300 f/4 APO G 400 f/4.5 APO G 600 f/4 APO G
*2× APO	6/5	2–9/16 × 1–11/16	7–7/16	200 f/2.8 APO G 300 f/2.8 APO G 300 f/4 APO G‡ 400 f/4.5 APO G‡ 600 f/4 APO G‡
2× II APO [HS]	6/5	2–9/16 × 1–11/16	7–7/16	200 f/2.8 APO G 300 f/2.8 APO G 300 f/4 APO G‡ 400 f/4.5 APO G‡ 600 f/4 APO G‡

‡– Manual focus only

Table 2.7: xi zoom lenses

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
Lens	Elements/ Groups	Angle of View	Min. Focus (ft)	Max. Magnification	Filter (dia.)	Dimensions (in) (dia. × length)	Weight (oz)
*35–80mm f/4–5.6 Power Zoom‡	8/8	63° – 30°	1.6	1/5.7	49 mm	2–5/8 × 2–1/8	6–3/8
*28–80mm f/4–5.6	7/7	75° – 30°	2.6	1/10	55 mm	2–13/16 × 2–5/8	9–11/16
*28–105mm f/3.5–4.5	13/10	75° – 23°	1.6 (f/28)	1/10	62 mm	2–7/8 × 3	15–7/8
*35–200mm f/4.5–5.6	17/15	63° – 12° 30’	1.6 (f/35)	1/6.5	62 mm	2–15/16 × 3–11/16	17–5/8
*80–200mm f/4.5–5.6	9/9	30° – 12° 30’	4.9	1/6.4	55 mm	2–7/8 × 3–3/16	10–9/16
*100–300mm f/4.5–5.6	11/9	24° – 8° 10’	4.9	1/4	55 mm	2–15/16 × 3–15/16	15–1/2

‡– Sold with xi cameras. Not true xi lens as zoom drive was camera AF motor. No motor in lens.

2.3.1 G Series

G-series lenses are Minolta’s high-performance class optics. They have the best specifications, feature special advanced technology, and offer the best image quality of all Minolta lenses. G-series lenses are designed to meet the high expectations of the most demanding professional. The quality of the image they produce is among the finest in the industry.

Each G-series lens incorporates one or more of the following features: circular aperture, double floating and floating-focusing systems, Internal focus, Anomalous Dispersion (AD) glass, aspheric elements, and

focus-hold buttons.

Minolta will continue to expand its G-series as the needs and demands of professional photographers grow.

Table 2.8: G lenses (I)

	AF 17–35mm f/3.5 APO	AF 35mm f/1.4	AF 85mm f/1.4 (D)	AF 28–70mm f/2.8	AF 80–200mm f/2.8 APO
Circular Aperture	Yes	Yes	Yes	Yes	Yes
Floating focus	No	Yes	Yes	Yes	No
Internal Focus	No	No	No	No	No
Anomalous Dispersion Glass	Yes	No	No	No	Yes
Asperhic Elements	Yes	Yes	No	Yes	No
Focus Hold Button	Yes	No	Yes	Yes	Yes

Table 2.9: G lenses (II)

	AF 200mm f/2.8 APO	AF Macro 200mm f/4 APO	AF 300mm f/2.8 APO	AF 300mm f/4 APO	AF 400mm f/4.5 APO	AF 600mm f/4 APO
Circular Aperture	No	Yes	No	Yes	Yes	No
Floating focus	No	No	No	No	No	No
Internal Focus	Yes	Yes	Yes	Yes	Yes	Yes
Anomalous Dispersion Glass	Yes	Yes	Yes	Yes	Yes	Yes
Asperhic Elements	No	No	No	No	No	No
Focus Hold Button	Yes	Yes	Yes	Yes	Yes	Yes

Table 2.10: G lenses (III)

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
35mm f/1.4 G	10/8	63°	1	f/22	55 mm	2–9/16 × 3	16–9/16
85mm f/1.4 G (D)	7/6	28° 30’	2.8	f/22	72 mm	3–1/16 × 2–13/16	19–3/4
200mm f/4 MACRO APO G	13/8	12° 30’	12° 30’	1/1	72 mm	3–1/8 × 7–2/3	40–3/16
200mm f/2.8 APO G	8/7	12° 30’	4.9	f/32	72 mm	2–3/8 × 5–1/4	17–7/8
300mm f/2.8 APO G	11/9	8° 10’	8.2	f/32	integral	5–1/16 × 9–3/8	87–1/2
300mm f/4 APO G	9/7	8° 10’	8.2	f/32	integral	3–9/16 × 8–11/16	49–3/4
400mm f/4.5 APO G	9/7	6° 10’	9.9	f/32	integral	4–1/4 × 10–3/4	67

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Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
600mm f/4 G	10/9	4° 10’	20	f/32	integral	6–5/8 × 17–11/16	194
17–35mm f/3.5G	15/12	104° – 63°	.98	1/6×	77 mm	3–1/4 × 3–1/5	21–1/16
28–70mm f/2.8 G	16/11	75° – 34°	2.3	f/22	72 mm	3–1/4 × 4–9/16	26–7/16
80–200mm f/2.8 APO G	16/13	30° – 12° 30’	5.9	f/32	72 mm	3–1/2 × 6–9/16	45–1/8

2.3.2 D-Series

D-Series lenses include new distance-encoding device which enables improved calculation for flash exposure with Maxxum 5 and 7 cameras when used with 3600HS D and 5600HS D flashes.

Table 2.11: D lenses

Lens	*Elements / Groups*	*Angle Of View*	*Min. Focus [ft]*	*Max. Magnification*	*Filter (dia.)*	*Dimensions (dia. × length) [in]*	*Weight [oz]*
24–105mm f/3.5–4.5 (D)†	12/11	84° – 23°	1.6	1/5.88	62 mm	2–5/8 × 2–5/8	13–15/16
28–80mm f/3.5–5.6 (D) (S)	8/7	75° – 30°	1.3	1/4.1	55 mm	2–7/16 × 2–9/16	6–11/16
75–300mm f/4.5–5.6 (D) (S)	13/10	32° – 8°10’	4.9	1/4	55 mm	2–13/16 × 4–13/16	16–1/4
100–300mm f/4.5–5.6 APO (D)†	11/10	24° – 8°10’	4.9	1/4	55 mm	2–7/8 × 4	17–1/10
85mm f/1.4 G (D)†	7/6	28°30’	4.9	1/7.81	72 mm	3–1/5 × 2–13/16	19–3/4
100mm f/2.8 Macro (D)†	8/8	24°	6.34”	1/1	55 mm	2–13/16 × 3–7/8	18

†– Manual focus ring does not rotate during AF

2.3.3 RS = Re-Styled Lenses

Fixed Focal Length Lenses

AF 20mm f/2.8 RS Rubber focusing grip. Circular aperture up to f/5.6. Revised Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

AF 24mm f/2.8 RS Rubber focusing grip. ABS plastic focusing barrel. Circular aperture up to f/5.6. Revised Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

AF 35mm f/1.4 RS AF lock/lens function button on lens. Rubber focusing grip. Circular aperture up to

f/5.6. Revised Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

AF 35mm f/2.0 RS Rubber focusing grip. Circular aperture up to f/5.6. Revised Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

AF 50mm f/1.7 RS Rubber focusing grip. ABS plastic focusing barrel. Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

AF 50mm f/1.4 RS Wider rubber focusing grip. ABS plastic focusing barrel. Circular aperture. Large, detachable lens shade. Foot/Meter focus scale in all white paint. 55mm filter thread. The new lens is optically the same as the original.

AF 85mm f/1.4 RS AF lock/lens function button on lens. Rubber focusing grip. Circular aperture up to f/5.6. Revised Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

Zoom Lenses

24-50mm f/4 RS Rubber focusing grip. ABS plastic focusing barrel. Foot/Meter focus scale in all white paint. The new lens is optically the same as the original.

24-85mm f/3.5-4.5 RS Circular Aperture. New style rubber focusing and zoom grips. The new lens is optically the same as the original.

28-85mm f/3.5-4.5 Introduced with 9xi in 1992. Polycarbonate barrel. Faster focusing.*

28-105mm f/3.5-4.5 RS Circular Aperture. New style rubber focusing and zoom grips. The new lens is optically the same as the original.

80-200mm f/2.8 APO HS The 80-200mm f/2.8 APO received a stronger focusing shaft which enabled better focus tracking, a rubber focusing grip for easier manual focus, and white paint finish.

Macro Lenses

50mm f/2.8 Macro Rubber focusing grip. ABS plastic focusing barrel. Circular aperture. Focus Range limiter. Focus hold button.

100mm f/2.8 Macro Rubber focusing grip. ABS plastic focusing barrel. Circular aperture. 40

HS = High Speed APO Lenses

- 200mm f/2.8 APO
- 300mm f/2.8 APO
- 600mm f/4 APO
- 80–200mm f/2.8 APO

These lenses were redesigned in 1988 for the Maxxum Series-i cameras. Internal changes include a faster focusing gear and a new IC ROM to enable faster focusing with Series-i, xi, and si cameras.

External changes include AF lock/lens function button (one for 200mm, two for 300mm and 600mm lenses), and ”High Speed Focus” decal on lens shade.

Additionally, the 80–200mm f/2.8 APO received a stronger focusing shaft which enabled better focus tracking, a rubber focusing grip for easier manual focus, and white paint finish.

- 1.4× APO Tele Converter

- 2× APO Tele Converter

The converters were redesigned with new gear and IC ROMs. External changes include TYPE II designation. It is OK to use old-style converters on new lenses. Using a new converter on an old, non-upgraded lens will cause slower focusing

Warning: THE APO CONVERTERS CANNOT BE USED WITH THE 80-200MM APO LENSES. If mounted together, the front element of the converter will contact back element of the lens and damage both.

2.3.4 Maxxum Lens Glossary

Circular Aperture Defocused background highlights take the shape of the diaphragm in wide-aperture portrait shots. The 9-blade apertures found in some of the G-lenses is specially designed to provide a circular opening at widest apertures (small f-numbers). A circular aperture produces softer, more natural-looking backgrounds at wider apertures than a lens having a standard 5-, 6-, 7-, or 9-bladed aperture.

Floating Optical Design Rather than moving all lens groups as a single unit, designated optical groups in some of the G-lenses move independently as the lens focuses. This ”floating” movement provides an extremely flat image at the film plane thus assuring corner-to-corner sharpness. It also provides a high degree of control over sagittal flare, and eliminates coma, an aberration that causes off-axis object points to appear as short ”comet-like” images on film. Reducing sagittal flare and coma provides an extremely sharp, high-contrast image which more effectively separates the subject from its background at large apertures.

Internal Focusing The AF 200mm, 300mm, and 600mm APO’s internal focusing system moves lighter internal lens elements to focus the image instead of the larger front elements used in conventional systems. This along with a high-ratio lens drive provides quick, accurate focusing of fast moving subjects. In addition, a focus limiter permits selecting a focusing range for even faster response.

Anomalous Dispersion (AD) Glass Different wavelengths of light come into focus at different planes. This effect is know as Chromatic aberration and can cause a ”rainbow” halo around points of light and reduced sharpness. ”Standard” achromatic telephotos are corrected to bring the red and blue components into focus at the film plane. The Anomalous Dispersion (AD) glass, used G-Series APO telephotos and zooms as well as the 100-300mm APO and 100-400mm APO virtually eliminates the effects of lateral and longitudinal chromatic aberration, providing increased sharpness and extremely accurate color rendition.

Aspheric Design Different than the smooth continuous arc of a normal lens element surface, the curvature of an aspherical lens element changes shape across its surface. This irregular surface helps to correct spherical aberration and coma, an aberration that causes off-axis object points to appear as short ”comet-like” images on film. It also reduces sagittal flare. The inclusion of aspheric elements in a lens design enables designers to reduce the amount of elements in the design. This in turn reduces the amount of flare producing surfaces, two per element, which increases the contrast and ”snap” to the final image. The reduction in elements also makes the lens smaller and lighter..

Focus-Hold Button When pressed, it locks focus or can be used to select spot focus or continuous AF (with Custom Function Card or Customize Function Card xi).

Distance Encoding Distance encoding with new and revised D lenses provides refined multi-segment metering for manual focus operation and depth-of-field display on Navigation Display with the Maxxum 7 as well as ADI flash functions when the new 5600(D) and 3600(D) flashes.

Integral Filters Because a front-mounted filter would be expensive and would cause excessive flare, the 300mm and 600mm Apo lenses have a built-in filter holder. Six filters are provided: NORMAL (clear), Y52 (yellow), O56 (orange), R60 (red), 1B (skylight) and ND4X (2-stop neutral density).

Achromatic Coating Minolta’s Achromatic, multi-layer coating provides remarkably accurate color rendition and excellent contrast by virtually eliminating reflections between lens elements.

Chapter 3

Flash-less photography

3.1 Photographing with M42 / Minolta AF lens reduction

[Author(s): Petr Holub.]

Needs more testing!!!

Tested in following setup:

- Date: 2002–08–13 20:30–23:30. Place: Flamenco concert, Brno, CZ
- Minolta Dynax 600si
- Russian mirror lens: 500/6.3 – 3M-6A (or ZM-BA – Russian alphabet???) N840247 with M42
- M42 / Minolta AF lens reduction
- Fuji Superia 1600 (with 4^{th}layer) pushed to 3200 ASA

Testing showed that metering doesn't work correctly. *System tends to underexpose at least 1 EV.* Also working conditions during this experiment were difficult because of overall low-light situation (correct exposition was about 5.6/20 with 3200 ASA film!) and strong spotlight.

After that I tried to play with it using different metering modes and comparing results to the ones measured through the standard lens I use (24–85/3.5–4.5 and 70–210/3.5-4.5) but without actually shooting on the film. I've found the measurements through the M42 reduction generally not very reliable (in all three modes – average, expert, and spot) with tendency to underexpose which matches experiences from the flamenco concert. To get proper exposure I suggest using either other light measurement (through other lens or using external exposure meter) or bracket -0.5 through $+2.5$.

It should be tested more thoroughly, especially influence of different metering modes and the results should be shot on slide film to get precise results.

3.1.1 Comment on M42

[Author(s): Magnus Wedberg.]

My own testing indicates that using M42 lenses on Minolta bodies is somewhat hit-and-miss. Results seems to heavily depend on which lens you are using, and on the camera, too. I never use any compensation with my Super Takumar 55/2.

3.2 More on photographing with M42 / Minolta AF lens reduction

[Author(s): Chingfeng Au. Reviewed by: Petr Holub.]

Part 1

This is just a fast test. All metering were segment metering (maybe I should use spot instead of segment)

- `http://auching.duc.auburn.edu/TEMP/pentax_minolta.htm`

In F8.0 test, Pentax SMC Takumar under about 1.5 EV – 2.0 EV. But when I set the aparture to F1.4, the shutter time seems near correct.

When using flash, it works well though.

	Minolta Matrix	Minolta Spot	Pentax Matrix	Pentax Spot	Pentax Spot +1.0	Pentax Spot +1.5	Pentax Spot +2.0
2.0	1/20	1/20	1/20	1/20			
2.8	1/10	1/10	1/20	1/20	1/8		
4.0	1/6	1/6	1/15	1/10	1/6		
5.6	1/3	1/3	1/8	1/8	1/3		
8.0	0.7	0.7	1/6	1/4		0.7	
11.0	1.5	1.5	1/4	1/3		1.5	
16.0	3	3	0.5	0.7			3

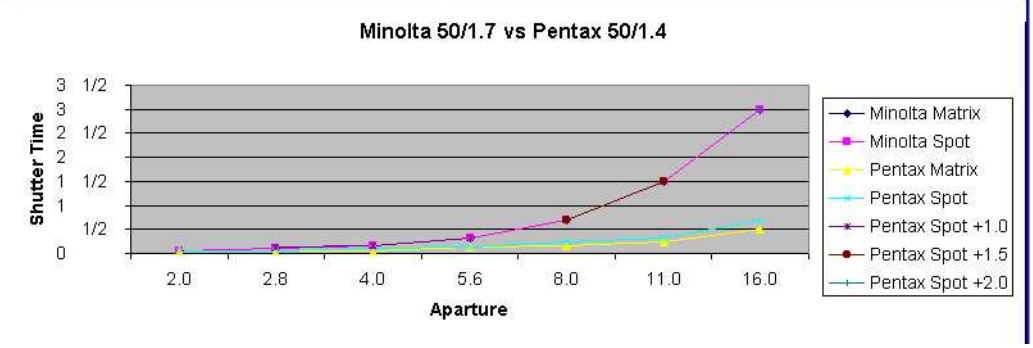


FIGURE 3.1: Results of M42 adapter tests (1)

Part 2

Here's the test base on Minolta 50/1.7 and Pentax SMC Takumar 50/1.4. It looks like you have to +1EV for F2.8 F5.6, +1.5EV for F8.0 F11.0, and +2EV for F16.0

- `http://auching.duc.auburn.edu/temp/m50p50.gif`

Test using aparture priority mode. (I still don't know why this happened? Theoretically, using aparture priority mode and spot metering, the TTL system should get correct amount of light and calculate correct shutter time, isn't it?)

3.3 Alternative testing of vignetting

[Author(s): CyberSimian. Reviewed by: Petr Holub.]

This experiment was desribed for 24–105/3.5–4.5 lens in [3] with Hoya filter attached.

Try this experiment when there is no film in the camera:

A	B	C	D	E	F	G	H
	M, Matrix	M, Spot	P, Matrix	P, Spot	C2/E2	EV	
2	1/3000	1/2000	1/3000	1/2000	1	0	
2.4	1/2000	1/1500	1/3000	1/2000	1.333333	0.5	
2.8	1/1500	1/1000	1/3000	1/2000	2	1	
3.5	1/1000	1/750	1/2000	1/1500	2	1	
4	1/750	1/500	1/1000	1/1000	2	1	
4.5	1/500	1/350	1/1000	1/1000	2.857143	1.5	
5.6	1/300	1/250	1/1000	1/750	3	1.5	
6.7	1/250	1/180	1/750	1/500	2.777778	1.5	
8	1/180	1/125	1/500	1/500	4	2	
9.5	1/125	1/90	1/500	1/350	3.888889	2	
11	1/90	1/60	1/250	1/250	4.166667	2	
16	1/45	1/30	1/125	1/125	4.166667	2	

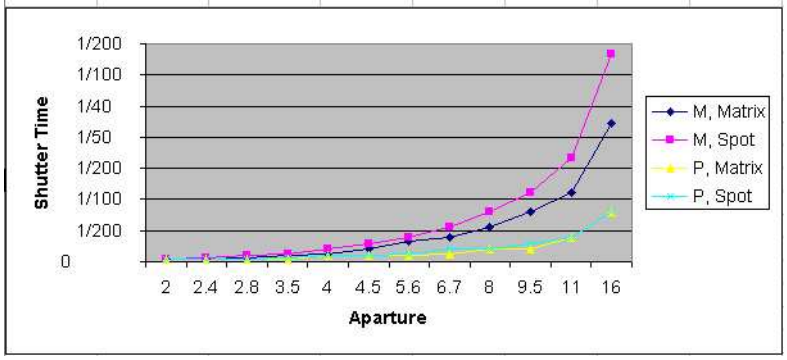


FIGURE 3.2: Results of M42 adapter tests (2)

1. Set the zoom to the 35 mm focal length.
2. Set the exposure mode to M (manual), the shutter speed to “bulb”, and the aperture to the maximum (f4 at 35 mm focal length). As the maximum aperture varies with focal length on the 24–105 zoom, remember to set the aperture AFTER setting the focal length.
3. Remove lens cap, lens hood, and filter.
4. Open the camera back and fire the shutter, holding the shutter open (a cable release helps here).
5. Point the camera at a bright wall or the sky and look through the back of the camera with one eye, about 12–18 inches from the film gate. You will see the rectangular film gate, the black baffling in the mirror box, and a bright circle (the rear element of the lens).
6. If you are holding the camera horizontally in the normal position and rotate the camera about a vertical axis, your line of sight through the lens appears to move horizontally towards one edge of the film gate. However, we actually want to check for vignetting at the *corners* of the frame, so instead rotate the camera about an axis displaced somewhat from the vertical, such that your line of sight through the lens appears to move diagonally from the centre of the film gate towards a corner of the film gate. It does not matter which corner, but I will assume the lower left corner in the following.
7. As you rotate the camera, you will see in the bright circle an area of darkness emerge from the upper right. As you rotate the camera more, the area of darkness will move towards the lower left, and you will be able to see that the area of darkness is an out-of-focus image of the interior baffling in the lens. Continue rotating the camera until the area of darkness reaches the lower left corner of the film gate. What you have just seen is the ”normal” behaviour of the lens, and is the reference that we will use to compare the effect of the lens hood and filters.
8. Attach the lens hood and repeat step (7). What you see will be identical to step (7), i.e. the lens hood does not obstruct the light falling on the film plane. This is what you would expect if the lens hood is correctly designed.

9. Remove the lens hood and attach the filter. I will assume that you are using a Hoya filter with a standard-thickness mount. Repeat step (7). Now there *is* a difference – as the area of darkness approaches the lower left corner, a *second* area of darkness emerges from the lower left corner and travels towards the upper right, eventually meeting the darkness approaching from the upper right. This second area of darkness was not present when there was no filter, and so is the result of adding the filter.

10. Leave the filter attached and change the focal length to 105 mm and repeat step (7). At this setting there is no second area of darkness that emerges from the lower left, i.e. adding the filter has not changed what you see at the 105 mm focal length.

11. Leave the filter attached, change the focal length to 24 mm, and reset the aperture to maximum (f3.5 at 24 mm). Repeat step (7). As the area of darkness from the upper right is about to envelope the lower left corner, you can see that the second area of darkness is just about to emerge from the lower left corner, i.e. adding the filter is on the threshhold of changing what you see at 24 mm focal length.

12. Check also the 50 mm and 70 mm settings; 50 mm is affected slightly (more than 24 mm; less than 35 mm), but 70 mm is not affected (same as 105 mm).

13. Repeat steps (7) to (11) for the filters that you want to use (e.g. standard-thickness UV; slim UV; standard-thickness polarising; slim polarising). If you are not using the standard lens hood, check that too.

Notes from exemplar testing of 24–104/3.5–4.5 lens with Hoya filter
My conclusion is that a Hoya filter with a standard-thickness mount produces no vignetting at 70–105 mm, is on the threshhold of producing vignetting at 24 mm, and does produce some vignetting in the range circa 30–60 mm. This is a strange result, as one would expect vignetting to be worst at the shortest focal length, but is presumably a result of the optical design of the 24–105 zoom.

3.4 Setting Minolta DiMAGE Scan Dual with VueScan

[Author(s): Petr Holub.]

Settings files are listed in App. A.1 (page 31).

3.4.1 Scanning Fuji Provia

Table 3.1: VueScan parameters for scanning Fuji Provia using Minolta Scan Dual

Parameter	*Value*	*Notes*
Lock Exposure	1.95	Might be increased to 2.2 if needed.
Long Exposure Pass	Yes	Reduces noise in dark parts of the image.
Color Balance	None	

3.5 Minolta mounts

[Author(s): Chuck Cole.]

Question: *How many types of minolta mounts are there?*

Answer: Four plus. (I don't know all the details but had the 9xi problem on a Sigma 400mm).

1a) Minolta made some Leica-compatible RF screw mount lenses for various rangefinders (both screw and focus cams work on both brands)

1b) Minolta made some Leica-thread, incompatible RF screw mount lenses for various rangefinders

2a) early SR/SRT mounts lacked the aperture tab found on all MD mounts and most (or all?) MC mounts: bayonet fits, but auto-metering doesn't work.

2b) regular MD/MC mounts with auto tab

2c) one rare 35mm guide number lens (aperture set per focus distance for old bulb flash)

2d) screw-adapter bellows types

3a) early Maxxum mounts (eg, 7000 & 9000) do AF with any version AF lens (early Sigma 400mm f5.6 doesn't work with 9xi, etc, but works with 7000,9000)

3b) mid Maxxum lenses work with all AF bodies, but lack DOF coupling

3c) newer Maxxum has DOF features

4) Vectis series lenses for R-3000 (digital), etc

Note: some Maxxums (eg, 2xi, 3xi, Spxi) cannot defeat their shutter interlocks so they can use T-mount lenses or telescopes, etc, but most can (see sec. 3.6).

I think there more RF versions and maybe a twin-lens type or two. Let's ignore the microscope and enlarger options that could be used on.

3.6 Disabling the lens mount check

[Author(s): Unknown, taken from Minolta AF FAQ [4].]

Table 3.2: Disabling the lens mount check

Camera	*Procedure*
5000, 7000, 9000, 3000i, 5000i, 7000i, 8000i	No preparation needed to use T-mount lenses.
2xi, 3xi, Spxi	Requires circuit modification by Minolta.
5xi	Press and hold SPOT and FUNC. buttons and switch from LOCK to ON.
7xi/9xi	Press and hold AEL and FUNC. buttons and move power switch from LOCK to ON.
300si	Press and hold FLASH and DRIVE/SELFTIMER buttons and move power switch from LOCK to ON. (Off appears in LCD panel)
400si	Press and hold Drive Mode and AV buttons and move power switch from LOCK to ON.
404si	Press and hold the P and Self Timer switches with Function Dial at ME while sliding the Main Switch to ON.
500si	Press and hold Drive Mode and SPOT buttons and move power switch from LOCK to ON.
continued on next page...	

. . . continued from previous page	
Camera	*Procedure*
505si	Super Press and hold Self Timer and SPOT buttons and move power switch from LOCK to ON.
XTsi	Press and hold the Selftimer-Drive Mode button and Spot/AE button while sliding the Main Switch to ON (OFF appears in LCD panel).
600si	Press and hold the LENS RELEASE button and FILM SPEED button with the lens removed and move the power switch from LOCK to ON. (OFF appears in LCD panel)
700si	Press and hold SPOT and CARD buttons and move power switch from LOCK to ON.
800si	Press and hold SUBJECT PROGRAM and AEL buttons and move power switch from LOCK to ON.(OFF appears in LCD panel)
Vectis S-1	Press ON/OFF to turn camera ON. Open door that covers hidden buttons. Press the Drive Mode button (fathest on the left) and the MODE button together. ”ON” will appear in the LCD panel. Press the ”SEL” button (second from right in hidden buttons). ”OFF” Will appear in the LCD panel.
Vectis S-100	Subject Program and +/-, then press any other button to confirm; displays ’on’ in display even with adapted manual lens attached.
RD-175	Press and hold DRIVE/SELFTIMER and AV buttons and move power switch from LOCK to ON. (ON appears in LCD panel)

3.7 Remote release cord

3.7.1 Building your own Remote Cord (v. 1)

[Author(s): Unknown, taken from Minolta AF FAQ [4]; Csaba JOZSA.]

The meaning of each pin is :

```
Back of the camera                Front of the camera

                      o   o   o
                      C   F   S

       C for Common
       F for Focus
       S for Shutter release.
```

The way to activate focus is to connect C and F, and for the release, C and S.

But there is still a problem: The question of the switch is not so trivial : The Minolta remote cord allow, on the same switch, to focus, and if pushed a bit more, to release the shutter. And to lock the switch with shutter released for long pause. It’s possible to implement this with 2 switches, but what appens if the focus switch is held when the release switch is pushed ? Or if the focus switch is held while the shutter is released in pause mode ? I don’t want to try this sort of experimentation on my camera.

Scott, did you find a switch with all these functions ? or do you have 2 switches ?

Anyway, for the connector, I had another solution from the news : It's to buy the cord which connect the camera to the IC R1 infrared remote device. The only problem is that this device only deal with the shutter release and I'm afraid that this cord only have two pins connected.

November 2002, Csaba JOZSA adds: I would like to add a comment: on the Dynax cameras (at least on the Maxxum/Dynax 5) the shutter release works *only* if the focussing is not switched off. Thus, the procedure is: connect focus pin to common – focussing – , connect shutter pin to common *without disconnecting the focus pin* – exposing –. It's a bit unhandy, since you are obliged to always focus before shutter release, aldo, if you focus with AF and then switch to MF mode, the camera won't change the focus setting. (On switching back to AF, he will.)

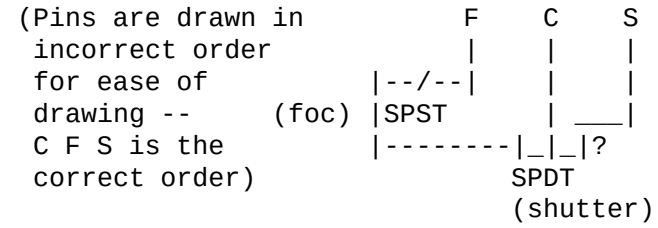
3.7.2 Building your own Remote Cord (v. 2)

[Author(s): Scott Kimball, taken from Minolta AF FAQ [4].]

The question was asked, Did I find a switch like Minolta uses, or did I use 2 switches.

The answer: I used 2 switches in the following way:

A push-on, push-off single pole, single throw switch enables focus. A momentary single pole, double throw switch de- activates focus and activates the shutter with one push.



Please forgive the crude drawing. Wired this way, using autofocus mode, you can first press the focus button to enable the autofocus. Then, when the camera has focused, press the shutter release button (the SPDT button) to switch instantly from "focus" to "fire" (and back again if you use the momentary switch). If you are manually focusing, you need not first press the focus button, and the shutter will still trip when you press the shutter release. If you do first press the focus button and the camera is in manual focus mode, nothing happens because autofocus is not on.

In a way, I like a 2 button setup better than a 1 button setup, because there is less chance of accidently firing off a shot. The only thing this doesn't have is a locking feature to lock the shutter open, but it shouldn't be hard to come up with a mechanical method of locking the button down.

As far as experimenting with this and the possibility of damaging the camera, as long as you don't introduce any current into the circuit there won't be a problem. The only other damage you could do is bending or breaking a pin in the camera socket if you make a connector that doesn't fit well and try to force it.

3.7.3 Building your own Remote Cord (v. 3)

[Author(s): Dario Piantanida, taken from Minolta AF FAQ [4].]

(Using an audio cable for the internal connection of CD-ROM drives...)

First cut che cd-rom connctor on the cd-rom side, to have a 20-30cm wire for the RC: on this side you'll mount the button or the switch (or both). On the audio card side you'll find a 4 pin plastic connector made like this:

```
1 2 3 4
r - w s
```

where `r=red`, `-=none`, `w=white`, `s=shield` (colours don't matter, but it's just to number the pins).

You'll work to obtain:

```
1 2 3
r - w
```

With a very little scewdriver push a little thin strip that holds the metal shield contact in the plastic connector: this way the metal contact should slip off the connector. Now you can cut the shield wire where it joins red and white ones.

Your next step is to file down the plastic connector to make it fit the camera hole. First of all you can cut away the old shield contact with a sharp knife (I don't know the English for the knife I mean), then use a file or sandpaper to reduce the size of the connector; I started with a grindstone, but be VERY careful: if you exaggerate you'll have to start over with a new connector. Here there is little to say: file a bit and try whether it fits; then file another bit. You'll have to file a lot on the long side that holds the thin strips of the metal contacts. You'll also pay attention to a little notch in the camera hole: try to file the connector to fit it.

Once you have the connector, I suggest you to strengthen the wires (red and white) that come from it: I used a glue gun (I hope the English is correct here) to create a "shell" for the wires.

Nothing more. This RC works properly on my 700si, even as a bulb switch.

Chapter 4

Flash photography

4.1 Flash–Ambient Control

[Author(s): Phil Brandon. Reviewed by: Petr Holub.]

This section is copy of one found on the web [16] (hopefuly I don't violate any copyright by including it in this guide). It's written by Phil Brandon from Minolta USA about 700si and paritally 800si but it seems to work for my 600si as well – so it's probably general a bit. On the bottom of the web page [16] there are some other notes – probably about 800si. It would be really nice if somebody who speaks both Thai and English translates those in English.

Whether using its built-in flash or an attached accessory flash, the Expert Flash system of the 700si is designed to recognize basic lighting conditions and adjust ambient light settings and flash duration to achieve the best results automatically. The table 4.1 on page 26 indicates adjustments made for all situations

4.1.1 P Mode Flash

When the flash is up or any dedicated accessory flash is attached to the 700si's hot shoe, either directly or through accessory connectors, it will fire automatically in **P** mode whenever necessary. The shutter speeds between 1/200 and 1/60 second and apertures within the working range of the lens will be set automatically depending on the ambient light level. The camera's TTL flash metering system monitors the amount of light which reaches the film plane and automatically stops the flash output when it detects that sufficient exposure has been received.

In backlight conditions requiring flash or when the forced-flash button is pressed, the ambient light exposure of the subject will be reduced by approximately one stop and the flash brightness will be reduced from 1/4 to 3/4 stop to maintain proper subject exposure. The background will be up to 1-1/2 stops brighter than the subject exposure.

When the SPOT button is pressed for slow-sync flash photography, flash brightness is reduced by 3/4 stop and shutter is set to a speed slow enough to allow normal background exposure.

The flash will not fire if the 700si is set for either PA or PS modes. Press the MODE button to resume normal P Mode flash operation.

Changing Program Flash Control with the Custom xi card

Normally the 700si's exposure computer will decide when to use flash even if the built-in flash is popped up or an accessory flash is attached and turned on. If you would like the flash to fire everytime the flash is lifted, use the Custom xi card to switch the Program flash control to manual switchover. The table 4.2 shows the function number and setting to make.

		Backlight fill-in	*Frontlight fill-in*	*Low light fill-in*	*Night scene*
Exposure control	Main subject: Flash light	−0.75 ∼ −0.25 EV	−0.75 ∼ −0.25 EV	0 EV	−0.75 EV
	Main subject: Ambient light	−1 EV or less	−1 EV	−1 EV or less	No adjust
	Backgroud (ambient)	+1.5 EV or less	No adjust	No adjust	0 EV
Mode and operation	P mode + Auto flash	Yes		Yes	
	P mode + Forced flash		Yes		
	A mode + Flash ON	Yes	Yes	Yes	
	S mode + Flash ON	Yes	Yes		Yes
	P mode + SLOW SYNC				Yes
	A mode + SLOW SYNC				Yes
	S mode + SLOW SYNC				Yes

Backlight fill-in	Daylight situation when the main subject is much darker than background
Frontlight fill-in	Daylight situation when there is no big difference between subject and background brightness
Lowlight fill-in	Dark condition or a situation which may cause blur due to camera shake
Night fill-in	Lowlight situation when background exposure is desired as much as the main subject.

TABLE 4.1: Flash–ambient compensations performed by camera

Function number	*Control*	*Setting*	*Action*
5	Program flash	1	Auto Switchover
	Control	2	Manual Switchover

TABLE 4.2: Changing Program Flash Control with the Custom xi card

4.1.2 A Mode Flash

In **A** Mode, the photographer sets the aperture and the camera automatically selects the fastest sync speed between 1/200 and 1/60 second that ambient light levels will allow. This provides the advantages of full depth-of-field control while the Expert exposure system uses multi-pattern metering or center-weighted metering to automatically determine ambient exposure and the necessary flash output.

Basically, the system is designed to reduce ambient light exposure by one stop (by increasing the shutter speed) and, if possible, maintain it at this level for backlight, frontlight, and lowlight fill-in. In backlight and frontlight conditions, the flash brightness is reduced from 1/4 to 3/4 stop to produce a pleasing subject exposure.

The background will be up to 1-1/2 stops brighter than the subject exposure.

For indoor photography, flash brightness is at its normal rating while the shutter speed is controlled to reduce and maintain ambient light brightness by one stop. The slowest shutter speed available in A mode is 1/60 sec. Ambient levels requiring longer speeds will be underexpose to a greater degree.

When the SPOT button is pressed for slow-sync flash photography, flash brightness is reduced by 3/4 stop and shutter is set to a speed slow enough to allow normal background exposure.

4.1.3 S Mode Flash

In this mode, any shutter speed between 1/200 sec. and 30 seconds can be selected by the photographer. The 700si Expert Exposure system then automatically selects the appropriate aperture from within the lens' working range.

Basically, the system is designed to reduce ambient light exposure of the subject by one stop (by closing the aperture) and, if possible, maintain it at this level for backlight, and frontlight fill-in. In these conditions, the flash brightness is reduced from 1/4 to 3/4 stop to produce a pleasing subject exposure. The background will be up to 1-1/2 stops brighter than the subject exposure.

Shutter-priority flash is best used when the ambient front or backlight is equal to or greater than the subject brightness. If used in normal indoor flash photography where the background is dark, the aperture will remain wide open until the ambient light level approaches a normal ambient light, exposure. This provides the least amount of depth of field for the picture. If the indoor brightness is high enough or the shutter speed selected is low enough to produce an ambient exposure without flash, the metering system treats the situation like a front- or back-light fill-in situation by reducing both ambient and flash exposure as described above.

When the SPOT button is pressed, flash brightness is reduced by 3/4 stop and the if the ambient light is bright enough to require an aperture smaller than the maxxum for the lens in use, the lens' aperture will be opened toward achieving better background exposure. Once again, S mode is not recommended for this procedure.

4.1.4 M Mode Flash

In this mode, both aperture and shutter speed (within maximum x-sync) are set by the photographer. The flash output is determined by the 700si's metering system and regulated by its TTL flash control system. The photographer can manually adjust the ambient exposure by the shutter speed and aperture selected and control automatic flash brightness by using the camera's flash exposure override feature. The 5200i, 5400xi, and 5400HS flash units can also be switched to manual operation and the level adjusted for special applications.

4.1.5 Fill Flash

In P mode, whenever the 700si's 14-segment honeycomb-pattern metering system detects that conditions require additional light to balance the subject and background exposures, a dedicated, attached accessory flash will fire automatically. When not normally called for in P mode, the flash can also be fired manually by pressing and holding the flash-control button while taking the picture. In **A**, **S**, and **M** modes, fill-flash

is calculated by the camera's AE system, but the flash must be activated manually before it will fire. See the respective sections above for more information.

4.1.6 Slow-Shutter Sync.

In **P** and **A** modes, pressing and holding the SPOT button while taking the picture causes the 700si to use a shutter speed slightly higher than that required for normal ambient light exposure. The flash exposure is also controlled to provide proper exposure. This technique provides a natural appearance of the main subject with better ambient-lit background detail.

Note: If the background is bright or a large aperture is set, the shutter speed may not be reduced.

4.1.7 Other comment

This seems to be excerpt from some mail by Phil Brandon. It is useful and clear enough to include it here.

> The flash-ambient programming is unchanged between the 700si and 800si.
>
> Back to the thought of the programming for flash: The camera has an Expert System which is the control for everything. It picks which focus sensor to favor, how to build the exposure pattern, how to set the shutter speed and aperture for effect, and how to balance flash with ambient.
>
> When flash is used, the most important consideration is NOT overexposing the subject by adding flash to an ablient light exposure that is already correct. (This is the key). Exposure is AF integrated. Once an AF sensor is locked in on the subject. An exposure pattern is built around it. The brightness of the subject is then compared against the background. If the subject is somewhat darker than the background (not a lot), the ambient light exposure might (probably will) be reduced up to 1 stop. However, the background in this case will still be greater and thus over exposed. The Flash duration is shortened a bit to reduce the flash exposure so the addition of flash will not produce a subject exposure that is "overexposed." As the subject and background become closer in brightness the flash will power down even more. I would expect to see a slight shutter speed increase (1/60 to 1/90 or 1/125) when the flash is turned on and camera is in A mode. The key to the background either over or under is a product of the subject brightness. Sort of a by-product. It just happens.
>
> With that said: if you adjust the Ambient light exposure, you will affect the flash component as well. If you like what the flash is doing but want to increase the ambient by $+1$, you have to adjust the flash by -1 to make sure its exposure is the same as the unbiased setting (I know this will bring on more questions). There is no way to really know exactly what the camera is doing by looking at any controls or readouts. You can infer if you really know the system and really know the brightness levels of subject.
>
> When I am really creating, I use manual exposure mode and spot metering. I read the mid tone of the background. Compare it to the subject tones. Determine what shutter speed and aperture settings to use for affect and then dial in my own –EV for flash control. Takes practice but I then "Know" exactly what to expect. If I am in a hurry and shooting print film, I shoot Program with flash and it looks fine.

4.2 Short summary on using fill-in flash

[Author(s): Petr Holub.]

Based on my experiences and experiences of other people [3] here is a short summary on how to get gentle fill in flash:

- **M** mode (called Brainer mode by Gary Walts in [15])
  - Meter your subject and set aperture and shutter speed for proper exposure *with flash turned off*. You can also use results of measurement in **P** mode again *with flash turned off* and set those vaules in **M** mode.
  - Dial-in the desired flash compensation – e.g. dial-in -0.5 flash compensation or you can set even no flash compensation at all.

- **P** and **A** mode (called No-Brainer mode by Gary Walts in [15]). Just press the force flash button on camera body. The result will habe about one stop underexposed background/ambient light so it's not what you usually want as daylight-balanced fill-in flash. But it's great for backlight...
- In **P** and **A** mode you can use SLOW SYNC method. SLOW SYNC is designed to make your shutter speed long enough to get proper exposure of ambient light[1]. According to Phil Brandons notes on flash programing (Table 4.1 on page 26 and 4.1.6 on page 28) the ambient light in this mode should be exposed without any compensation (in my experiences it is sometimes up to 0.5 EV underexposed) – the same situation you probably want with daylight fill-in flash. In my experiences it worked O. K. except for the high-speed sync (HSS mode) when it has usually no effect on shutter speed[2]. When you want especially subtle fill-in you can dial -1 or even -2 EV flash compensation.
- **P** and **A** mode
  - You need to compensate (ambient) exposure decrease invoked automatically by the camera in those modes when flash is turned on. Amount of compensation varies on ambient light level but usualy you need to set about $+1$ EV. Unless you have Maxxum/Dynax 7 with flash compensation detached from ambient compensation bear in mind that flash output increases by the same amount as the ambient compensation set.
  - Now you need to compensate flash for both the automatic increase due to ambient exposure compensation and the flash compensation that you want to dial in. In case of $+1$ ambient compensation you need to dial -1 flash compensation to get original flash power. Than you can go further with your intended flash compensation – if you want to have flash power increased by -0.5 you need to dial-in -1.5 total flash compensation.

  Disadvantage of this approach is in the fact that overall exposure compensation that camera sets after turning on the flash may be exactely one stop (if camera decides it's frontlight situation) but it may be even more so you never know what compensation exactely should be set unless you do the measurement with flash turned off.

Most precise fill-in flash can be obtained using **M** (Brainer mode) mode described above but it's the most time consuming. For faster work SLOW-SYNC would be probably the choice.

Notes:

- When flash is the main (only) source of light you can achieve following results with compentsation (C) and flash compensation (FC)
  - C $= 0$; FC $= 0$ – properly exposed picture
  - C $= 0$; FC $= -1$ – one stop underexposed picture
  - C $= 0$; FC $= +1$ – one stop overexposed picture
  - C $= +1$; FC $= -1$ – properly exposed picture (no effect)

  (this is based on tests with Dynax 600si/3600HS(D)/Kodak Ektoachrome E200 slide film).

4.3 Short summary on using wireless flash

[Author(s): Gary Friedman. Reviewed by: Petr Holub.]

Well, embedded within these comments lie two other misconceptions about Minolta's wireless flash which will be debunked in the forthcoming article. However, I'll outline them briefly here:

[1] Intent behind described in Minolta manuals is night photography with some foreground object – e. g. person – lit by flash; both foreground and background should be properly exposed

[2] This behavior can be expected because of primary *raison d'être* of SLOW SYNC mode, i.e. low-light photography, when you wouldn't have your flash in HSS mode.

- As misleading as Minolta's documentation is, you do NOT need to buy the wireless IR flash controller in order to control more than one off-camera flash! Your built-in flash can do this unaided. Just put all of your off-camera flashes on automatic and aim them at the subject, and during exposure the camera's built-in flash will send the "All Off" command whenever it detects that enough light has hit the film – regardless of which flash (or combination of flashes) produced the light.

  Armed with this knowledge you can also set up 1:3, 1:6, or 1:Anything flash ratios just by changing the flash-to-subject distances, and the camera will send the "all off" signal when the light is sufficient (usually this will be the light from the closest flash - the flash that is further away will be turned off before it has a chance to put out enough light – hence the ratio.) This technique also means you can achieve automatic flash ratios using HSS off-camera; you're not tied to Minolta's built-in $1/60^{th}$of a second ($1/30^{th}$of a second on the Maxxum 9) flash synch limitation.

- When used as a controller, the built-in flash puts out a negligible amount of light as compared to what is required for a proper exposure. That is why you can't see any evidence of the on-camera flash being present in any of the examples. To prove this to yourself, take a flash meter (in cumulative mode) and measure the total amount of light coming out of the built-in flash, both when in wireless controller mode and in "normal" mode, and compare the results.

Since the Wireless IR flash controller will also PREVENT you from using off-camera high-speed synch on the Dynax 7, there is no really good reason to buy one. I have found it to be very useful in only one situation which is not very common: When using Minolta wireless flashes in manual mode (say, in a studio situation), and you want to use a flashmeter to measure the light hitting the subject, the in-band signals used to control the off-camera flashes will interfere with the handheld flashmeter's reading. Since most flashmeters employ IR filters near the sensor, using the wireless IR flash controller will completely eliminate this problem.

I have found the 5600HS flashes to be excellent wireless studio flashes, by the way. Check out some samples at my other website, `http://www.NotYourOrdinary.com`.

Great examples of using wireless flash can be found on Gary's web site [18]. Similar experiences of other people can be found here: [3, 15] and quite thorough guide by Gary Walts [15].

Appendix A

Flash-less experiments

A.1 INI files for Minolta DiMAGE Scan Dual with VueScan

[Author(s): Petr Holub.]

A.1.1 Settings for Fuji Provia 100F

```
[VueScan]
[Device]
OptionTypes=2
DiskFileName=scan0007.tif
[Device-ScanDual-35mmSlide]
PreviewResolution=3
ScanResolution=2
Rotation=2
NumberOfSamples=3
LongExposurePass=1
LockExposure=1
RGBExposure=1950
InfraredExposure=2508
PreviewExposure=1950
[Crop-ScanDual-35mmSlide]
CropSize=1
XSize=2768
[Color-ScanDual-35mmSlide]
ColorBalance=0
[Color]
SlideVendor=1
[Files-ScanDual-35mmSlide]
ImageUnits=1
ImageSize=18
[Files]
TIFFFileName=scan0001+.tif
TIFFFileType=4
RawFileName=scan0001+.tif
RawFileType=4
[Prefs]
ExternalViewer=0
WindowXOffset=0
WindowYOffset=0
```

```
WindowXSize=1280
WindowYSize=1024
```

A.1.2 Settings for Konica Centuria 100

```
[VueScan]
[Device]
Mode=1
[Device-ScanDual-35mmFilm]
Rotate=3
[Color]
ColorBalance=1
AutoBlackPoint=0
BlackPointRed=0
BlackPointGreen=0
BlackPointBlue=0
AutoWhitePoint=0
WhitePointRed=40
WhitePointGreen=40
WhitePointBlue=40
[Media]
SlideVendor=1
[Media-ScanDual-35mmFilm]
AutoMask=0
MaskRed=837
MaskGreen=999
MaskBlue=921
[Crop-ScanDual-35mmFilm]
AutoCrop=0
XOffset=750
YOffset=1209
CropSize=0
XSize=23004
YSize=34631
XSpacing=49998
YSpacing=49998
[Options-ScanDual]
RGBExposure=901
NumberOfPasses=4
Filter=2
SizeReduction=4000
[Files]
TIFFFileName=scan01+.tif
[Window]
ExternalViewer=0
BeepWhenDone=1
```

A.1.3 Settings for Konica Centuria 200

```
[VueScan]
[Device]
Mode=1
[Device-ScanDual-35mmFilm]
Rotate=3
```

```
[Color]
ColorBalance=1
AutoBlackPoint=0
BlackPointRed=0
BlackPointGreen=0
BlackPointBlue=0
AutoWhitePoint=0
WhitePointRed=40
WhitePointGreen=40
WhitePointBlue=40
[Media]
SlideVendor=1
[Media-ScanDual-35mmFilm]
AutoMask=0
MaskRed=799
MaskGreen=998
MaskBlue=828
[Crop-ScanDual-35mmFilm]
AutoCrop=0
XOffset=750
YOffset=1209
CropSize=0
XSize=23004
YSize=34631
XSpacing=49998
YSpacing=49998
[Options-ScanDual]
RGBExposure=901
NumberOfPasses=4
Filter=2
SizeReduction=4000
[Files]
TIFFFileName=scan01+.tif
[Window]
ExternalViewer=0
BeepWhenDone=1
```

A.1.4 Settings for Konica Centuria 400

```
[VueScan]
[Device]
Mode=1
[Device-ScanDual-35mmFilm]
Rotate=3
[Color]
ColorBalance=1
AutoBlackPoint=0
BlackPointRed=0
BlackPointGreen=0
BlackPointBlue=0
AutoWhitePoint=0
WhitePointRed=40
WhitePointGreen=40
WhitePointBlue=40
```

```
[Media]
SlideVendor=1
[Media-ScanDual-35mmFilm]
AutoMask=0
MaskRed=800
MaskGreen=880
MaskBlue=774
[Crop-ScanDual-35mmFilm]
AutoCrop=0
XOffset=750
YOffset=1209
CropSize=0
XSize=23004
YSize=34631
XSpacing=49998
YSpacing=49998
[Options-ScanDual]
RGBExposure=977
NumberOfPasses=4
Filter=2
SizeReduction=4000
[Files]
TIFFFileName=scan01+.tif
[Window]
ExternalViewer=0
BeepWhenDone=1
```

A.1.5 Settings for Konica VX 100

```
[VueScan]
[Device]
Mode=1
[Device-ScanDual-35mmFilm]
Rotate=3
[Color]
ColorBalance=1
AutoBlackPoint=0
BlackPointRed=0
BlackPointGreen=0
BlackPointBlue=0
AutoWhitePoint=0
WhitePointRed=40
WhitePointGreen=40
WhitePointBlue=40
[Media]
SlideVendor=1
[Media-ScanDual-35mmFilm]
AutoMask=0
MaskRed=685
MaskGreen=993
MaskBlue=820
[Crop-ScanDual-35mmFilm]
AutoCrop=0
XOffset=750
```

```
YOffset=1209
CropSize=0
XSize=23004
YSize=34631
XSpacing=49998
YSpacing=49998
[Options-ScanDual]
RGBExposure=901
NumberOfPasses=4
Filter=2
SizeReduction=4000
[Files]
TIFFFileName=scan01+.tif
[Window]
ExternalViewer=0
BeepWhenDone=1
```

A.1.6 Settings for Fuji Superia 1600

```
[Media]
SlideVendor=1
[Device-ScanDual-35mmFilm]
Rotate=3
[VueScan]
[Device]
Mode=1
[Color]
AutoBlackPoint=0
BlackPointRed=0
BlackPointGreen=0
BlackPointBlue=0
AutoWhitePoint=0
WhitePointRed=40
WhitePointGreen=40
WhitePointBlue=40
ColorBalance=3
ImageBrightness=500
[Media-ScanDual-35mmFilm]
AutoMask=0
MaskRed=658
MaskGreen=925
MaskBlue=648
[Crop-ScanDual-35mmFilm]
XOffset=958
YOffset=1417
XSize=23004
YSize=34631
XSpacing=49998
YSpacing=49998
AutoCrop=0
CropSize=0
[Options-ScanDual]
NumberOfPasses=2
RGBExposure=1559
```

```
Filter=2
[Files]
TIFFFileName=scan01+.tif
[Window]
ExternalViewer=0
BeepWhenDone=1
```

A.2 Reciprocity Corrections – Brooks Institute

[Author(s): Unknown.]

Table A.1: Reciprocity Corrections – Brooks Institute (1/2)

M.R.	Ektachrome 64T	Fujichrome 64 Tung.	Kodachrome 25	Kodachrome 64	Fujichrome 50	Fujichrome 100
1.0”	NA	1.0”	1.5”	1.0”	1.0”	1.0”
1.2”	NA	1.2”	2.0”	1.2”	1.2”	1.2”
1.6”	NA	1.6”	2.5”	2.0”	1.6”	1.6”
2.0”	NA	2.0”	3.8”	3.0”	2.0”	2.0”
2.5”	NA	2.7”	5.0”	4.8”	2.5”	2.5”
3.2”	NA	3.5”	6.5”	7.0”	3.4”	3.3”
4.0”	NA	4.7”	9.0”	11”	4.5”	4.3”
5.0”	NA	6.0”	12”	15”	6”	5.7”
6.4”	NA	8.0”	17”	22”	8”	7.5”
8.0”	NA	10”	23”	30”	11”	9”
10”	NA	13”	32”	42”	15”	12”
12”	NA	16”	43”	56”	20”	17”
16”	NA	22”	62”	1’26”	32”	27”
20”	NA	29”	1’28”	2’02”	45”	39”
25”	NA	37”	2’05”	2’55”	66”	58”
32”	NA	50”	3’08”	4’23”	1’41”	1’31”
40”	NA	66”	4’40”	6’24”	2’30”	2’19”
50”	NA	1’28”	7’07”	9’25”	3’45”	3’32”
64”	67”	2’01”	12’	15’	5’55”	5’49
1’21”	1’32”	2’52”	17’	23’	9’10”	8’53”
1’42”	2’03”	4’02”	27’	35’	15’	13’
2’08”	2’39”	5’40”	42’	54’	23’	19’
2’42”	3’23”	8’02”	65’	84’	35”	29’
3’23”	4’16”	12’	99’	129’	54’	45’

Table A.2: Reciprocity Corrections – Brooks Institute (2/2)

M.R.	Velvia	Ekta100+	Ekta200
1.0”	NA	NA	1.2”
1.2”	NA	NA	1.5”
1.6”	NA	1.8”	2.2”
2.0”	NA	3.0”	2.8”
2.5”	3.8”	4.5”	3.6”
3.2”	4.1”	6.6”	4.8”
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M.R.	Velvia	Ekta100+	Ekta200
4.0”	4.9”	9.0”	6.3”
5.0”	6.5”	12”	8.2”
6.4”	8.8”	16”	11”
8.0”	12”	21”	14”
10”	16”	27”	19”
12”	19”	33”	23”
16”	28”	45”	32”
20”	39”	57”	42”
25”	49”	1’13”	55”
32”	1’06”	1’35”	1’13”
40”	1’28”	1’58”	1’35”
50”	1’56”	2’28”	2’03”
64”	2’38”	3’11”	2’45”
1’21”	3’31”	4’02”	3’38”
1’42”	4’42”	5’06”	4’46”
2’08”	6’22”	6’30”	6’14”
2’42”	8’22”	8’07”	8’14”
3’23”	11’06”	10’11”	10’45”

Appendix B

Flash experiments

B.1 Wireless flash experiment

B.1.1 Experiment setup

[Author(s): Petr Holub.]

Basic experiment information:

- Date: 2002–08–11 11:00am
- Place: Brno, CZ
- Minolta Dynax 600si, 24–85/3.5–4.5 set to 85
- Kodak ProFoto 100 (expiration 07/2004), scanned on Noritsu QSS-2901 digital minilab/scanner in Base4 resolution (theoretically 1536x1024, actually 1486x1024)
- ambient light $\approx$ 5.6/2”
- heavy cloudy, spot metering on windows made 5.6/8 on average and 5.6/45 at maximum
- experiment performed indoors with setup pictured on Fig. B.1
- setup for each picture is summarized in Tab. B.1
- observation of camera and flash behavior are summarize in Tab. B.2
- resulting pictures are in Tab. B.3

Table B.1: Wireless flash experiment setup

#	*aperture/speed*	*position 1*	*position 2*	*position 3*
1	5.6/60	–	built-in	3600HS(D)
2	5.6/60	–	5400HS wireless control	3600HS(D)
3	5.6/60	–	5400HS wireless control 2:[1]	3600HS(D)
4	5.6/60	5400HS	built-in	3600HS(D)
5	5.6/60	3600HS(D)	built-in	5400HS
6	5.6/60	3600HS(D)	built-in	5400HS 2:[1]
7	5.6/60	5400HS 2:[1]	built-in	3600HS(D)
8	9.5/60	5400HS	built-in	3600HS(D)
9	9.5/60	5400HS 2:[1]	built-in	3600HS(D)

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#	*aperture/speed*	*position 1*	*position 2*	*position 3*
10	9.5/60	–	5400HS wireless control + flash button	3600HS(D)
11	5.6/60	–	5400HS wireless control + flash button	3600HS(D)
12	5.6/60	–	5400HS wireless	–
13	5.6/60	–	5400HS	–

B.1.2 Experiment results and discussion

Table B.2: Wireless flash experiment: observations of camera and flashes behavior

#	*before exposure*	*after exposure*	*test flash (AEL button)*
1	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and one flash (off-camera)
2	ϟ glowing	ϟ blinking	one starting flash (on-camera) and one flash (off-camera)
3	ϟ glowing	ϟ blinking	one starting flash (on-camera) and two simultaneous flashes (off- and on-camera)
4	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and two flashes (off-camera)
5	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and two flashes (off-camera)
6	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and two flashes (off-camera); 5400HS flashes approx. 0.5 sec after 3600HS(D)
7	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and two flashes (off-camera); 5400HS flashes approx. 0.5 sec after 3600HS(D)
8	ϟ ϟ blinking alternately	ϟ blinking	one starting flash (on-camera) and two flashes (off-camera)
9	ϟ ϟ blinking alternately	ϟ ϟ blinking alternately	5400HS flashes approx. 0.5 sec after 3600HS(D)
10	ϟ glowing	ϟ glowing	undistinguishable from case 1 and 2
11	ϟ ϟ blinking alternately	ϟ blinking	undistinguishable from case 1 and 2
12	ϟ glowing	ϟ blinking	–
13	ϟ glowing	ϟ blinking	–

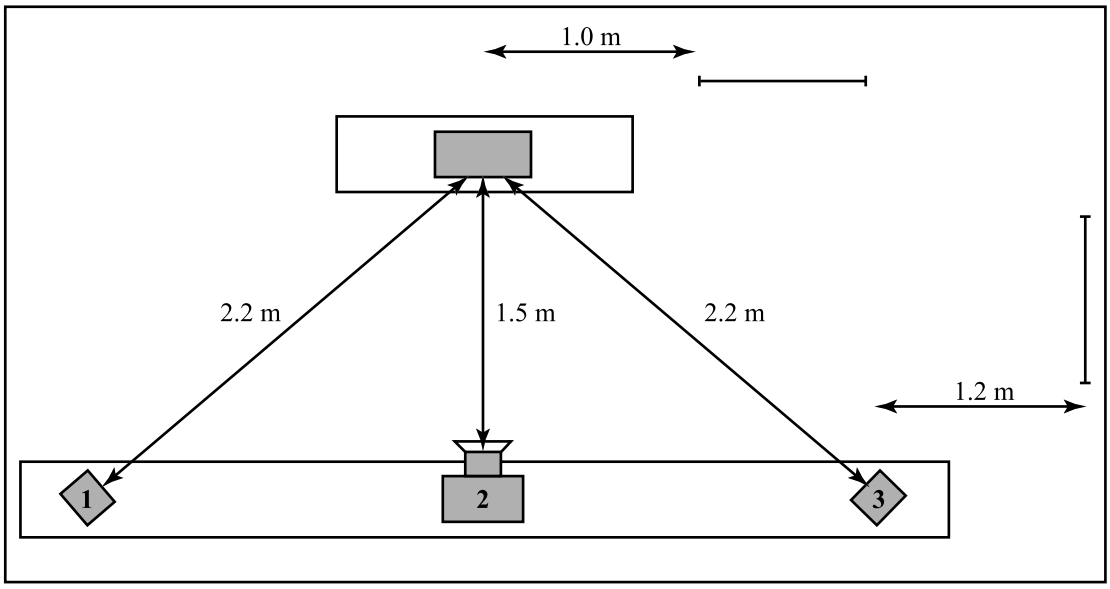
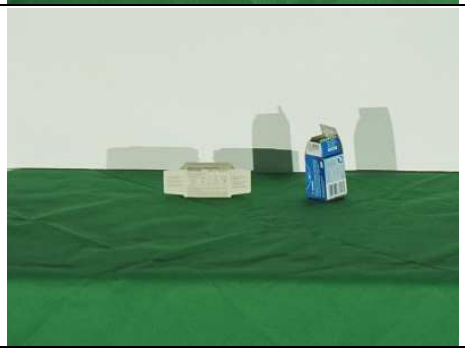


FIGURE B.1: Wireless flash experiment setup

Table B.3: Wireless flash experiment: results

#	*picture*	#	*picture*
1		**2**	
3		**4**	

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#	*picture*	#	*picture*
5		**6**	
7		**8**	
9		**10**	
11		**12**	

continued on next page. . .

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#	*picture*	#	*picture*
13			

To summarize what I got from this experiment:

- When placing wireless flashes around your subject be careful about distances you place your flashes from the subject and the powers of flashes since you can create different ratios unintentionaly[1].
- You can have ratio wireless off-camera flashes even without dedicated wireless flash controller despite what Minolta says in 5400HS flash manual. All you have to do is to set 5400HS to 2:[1] ratio and fire the flashes using built-in camera flash.
- If you have 5400HS on-camera and you have your camera swichted to wireless mode (so that you have WIRELESS word shown on 5400HS display – but not WIRELESS CONTROL!) flash works just like ordinary on-camera flash and it is unable to fire any wireless flash. You need to set it to WIRELESS CONTROL mode by pressing and holding OPT button to do so.
- If you have 5400HS on-camera flash set to WIRELESS CONTROL and you need to use it as fill light (2:1) then you need to switch it to WIRELESS CONTROL 2:[1] mode. The way usual for built-in flash (holding flash button on camera body while shooting) seems not to work[2].

B.2 Flash Test – ADI/Pre-Flash/Bounce/Wireless

[Author(s): Marat R. Safiulin. Reviewed by: Petr Holub.]

- There are three tables down there: Flash Tests 24–85 (Tab. B.4), Flash Tests 28–80D (Tab. B.5) and Flash Tests WL (Tab. B.6).
- Pictures in the first two tables were scanned with the exposure lock except for the file “28–80D ADI 5600” which served as a sample, i. e. I scanned it with the AE and then locked exposure for all other images in order to show exposure differences. Pictures in the third table were scanned with the AE (on the negative there were almost no differences between them).
- Please, do not judge the artistic value of the images— they were made for pure test purpose only.
- As long as I had only 4 test pictures for the 28–80/3.5–5.6 D lens (I didn’t make bounce shots with this lens because I think they would be equal to those made with the 24–85/3.5–4.5) I put two additional images made with the 24–85 lens instead, but on them the subject is relatively far away from the camera - focal length was 85 mm, with all other shots, except WL, it was 70 mm. As you

[1] I’ve heard rumors that Canon cameras together with Canon flashes can be programmed in such a way that they are distance independent. The only way I’m able to come up with how to do this sort of thing is that flashes are fired sequentionaly so camera can balance them to get equal portion of light from each of them. *Nota bene:* this note is not to provoke any flamewars or brand-wars but it’s rather because of my technical curiosity!!!

[2] The other possibility is that on-camera flash is so weak in this case that I haven’t noticed it on the resulting photos. This shoud be re-measured using slide film with small exposure latitude.

may see, the camera was badly tricked by the fluorescent lighting in the room and the picture “24-85 Preflash 5600 Vertical” is severely underexposed, though the flash still provided some weak light. :-((.

- If we accept the sample picture, “28-80D ADI 5600” as perfectly exposed one, then the 4–segment metering comes the best after it with about 1/2 overexposure regardless the lens+flash combination used. With the pre-flash metering results are practically unpredictable if a non- D lens is used - in some cases it gives heavy overexposure (like in “24–85 Preflash 5X00” files) or shows bad underexposure (see the previous comment). With the D-lens even non-D 5400 showed similar results to 4–segment metering.in the pre-flash mode.

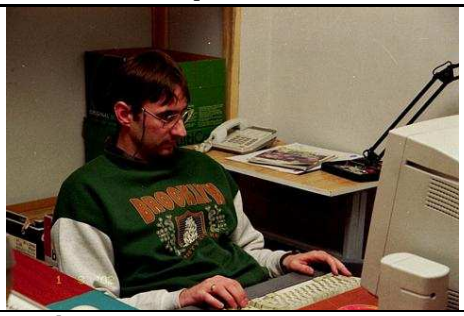
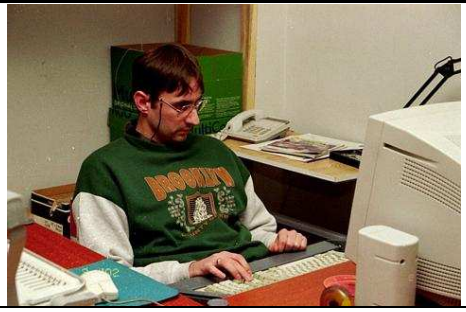
- In the wireless mode results should be interpreted the following way: the first flash in the name stands to the left of the camera while the second one stands to its right. Numbers in parenthesis indicate the ratio power for each flash. “ctrl” means “Control”, “slv” means “slave” for the pictures where one of the flashguns was used as a control for another. For getting this work I made a trick with the OS1100 filling in the whole on the shoe. But as long as the flashes were relatively close to the subject (I think less than 1 meter) the results in this mode are contradictory to what it should be in reality— the control flash, even set to (1) ratio power overexposes it’s side of the picture, though it should be way around. Another note: when the 5600 acts as a controller the camera does not give an OK signal, though the pictures were apparently exposed properly. With the 5400 set to the controller everything works as it should and the camera gives OK signals. I think that this is understandable, as long as the manual for the 5600 warns against using the 5600 as a controller if a non-D flash is used as a remote because the latter won’t fire. Well, in my tests the 5400 fired all right, though without OK signal after the shot.

- The built-in flash works in fact as a real wireless controller, so it is possible to use 1:2 ratio between two remote units. Though the it works the best with the 5600 set to (2) and 5400 set to (1). With reversed setting the effect of the ratio is much less prominent, but this way it is possible to play with lighting in a more flexible way, IMHO. When both flashes are set to the equal power (i.e. without any ratio, just plain wireless mode) they provide equal illumination.

```
> Thanks for posting the results of your flash test, Marat.
> My conclusion is that, contrary to what has been stated
> earlier and often on this e-group, Minolta flash results
> are very unpredictable unless using a D lens.
```

Yes, they are. Unpredictable they become only with the pre-flash and a non-D lens. Now, as long as I don’t have a D-lens, I have switched the flash metering to the 4-segment one - at least it gives very consistent and predictable results, though it tends to overexpose a bit. But still the 4- segment metering is much better than the centerweighted one in all Minolta cameras prior to the 9...

Table B.4: Flash experiment: 24–85 lens

#	*picture*	#	*picture*
24–85 Bounce 5400		**24–85 Bounce 5600**	

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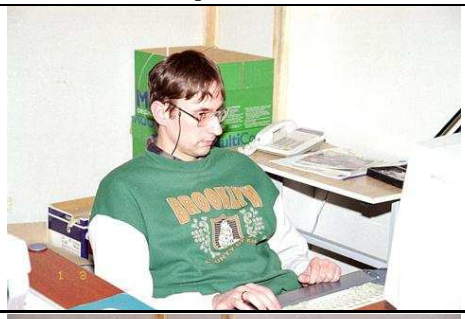
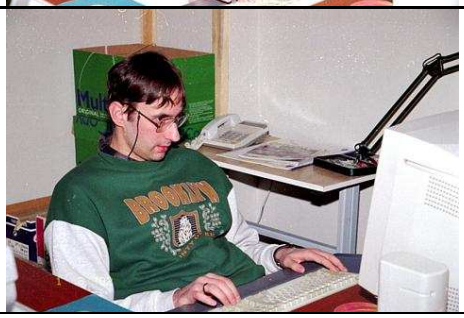
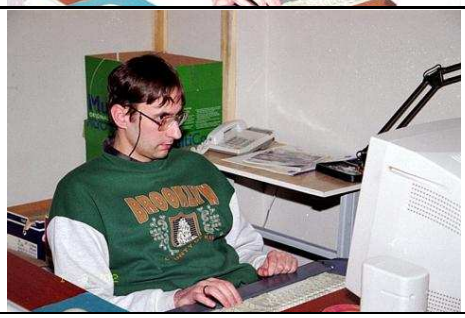
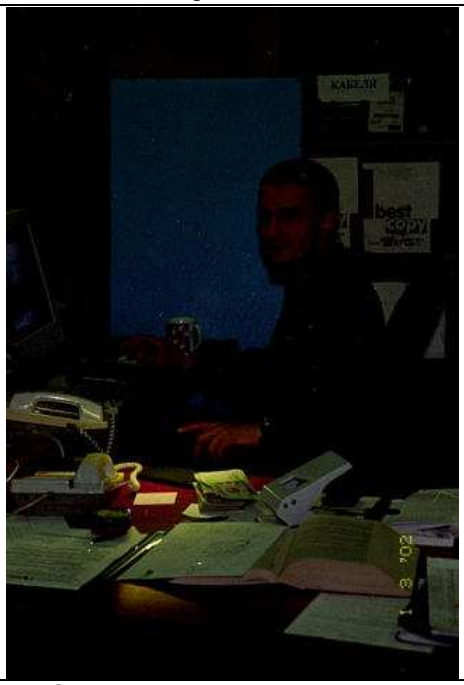
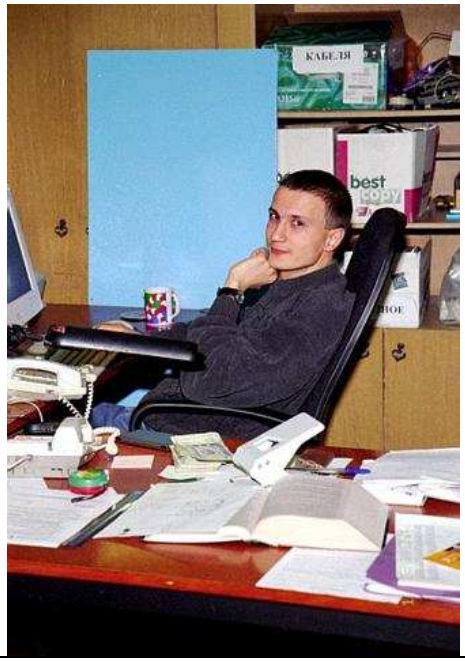
#	*picture*	#	*picture*
24–85 Prefhsh 5400		**24–85 Prefhsh 5600**	
24–85 4S 5400		**24–85 4S 5600**	

Table B.5: Flash experiment: 28–80D lens

#	*picture*	#	*picture*
24–85 Prefhsh 5600 Vertical		**24–85 4S 5600 Vertical**	

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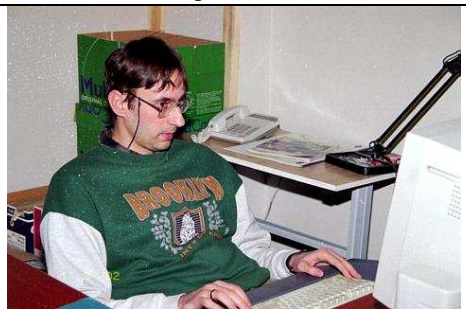
#	*picture*	#	*picture*
28–80D ADI 5600		**28–80D Preflash 5400**	
28–80D 4S 5400		**28–80D 4S 5600**	

Table B.6: Flash experiment: Wireless

#	*picture*	#	*picture*
WL 5400ctrl(1) 5600slv(2)		**WL 5600ctrl(1) 5400slv(2)**	

continued on next page. . .

. . . continued from previous page

#	*picture*	#	*picture*
WL 5400 = 5600		**WL 5600(1) 5400(1) Built-in(1)**	
WL 5400(1) 5600(2)		**WL 5600(1) 5400(2)**	

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